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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,492	12/03/2003	Beom-Jun Ju	P24634	3976
7055 7590 01/22/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER PAUL, DISLER	
			ART UNIT	PAPER NUMBER
			2615	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		01/22/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/22/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/725,492	Applicant(s) JU, BEOM-JUN	
	Examiner Disler Paul	Art Unit 2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asakura et al. ("US 6,681,018 B1") and Yoshida ("US 5,321,671").

Re claim 1, Asakura et al. disclose a channel down mixing apparatus for a car audio system, which has a channel down mixing function for down mixing a sub-woofer signal to an L (left) channel and an R (right) channel when a user does not select a sub-woofer speaker, the apparatus comprising ("fig. 1 & fig. 3-when sub-woofer is not selected, the signals are down mixed") a pair of buffers that amplifies an L channel input signal and an R channel input signal to a designated gain ("fig. 1/10 & col. 5 line 42-44 and fig. 3/(54L, 54C, 54SL, 54SR)") respectively; mixing the sub-woofer signal with the L channel input signal and the R channel input signal when the user does not select the sub-woofer speaker ("col. 1 line 38-42"), and outputs a mixed signal to each of the buffers ("fig. 3/(27HL, 27HR, 27HL)-mixed signal outputted to buffer"); Asakura et al. fail to disclose a first transistor being turned on when the user turns on the sub-woofer speaker; and a second transistor and a third transistor, which are turned off when the first transistor is turned on and turned off when the first transistor is turned

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on. However, Yoshida disclose a radio receiver in which a first transistor being turned on when the user turns on the sub-woofer speaker; and a second transistor and a third transistor, which are turned off when the first transistor is turned on and turned off when the first transistor is turned on ("fig.1/(13,28,47) & col.4 line 3-13 & col.2 line (10-11,24)-transistor turn on when speaker in driving mode") for the purpose of energizing the driving motor through the second power terminal when the third transistor is in its "ON" state.

Therefore taking the combined teaching of Asakura et al. and Yoshida as a whole, it would have been obvious for one skill of ordinary art to incorporate first transistor being turned on when the user turns on the sub-woofer speaker; and a second transistor and a third transistor, which are turned off when the first transistor is turned on and turned off when the first transistor is turned on in Asakura et al. for the purpose of energizing the driving motor through the second power terminal when the third transistor is in its "ON" state as taught by Yoshida. Reducing the L channel input signal and the R channel input signal to a designated level, respectively ("fig.1-2/21 & col.2 line 20-21-audio signals selected equalizer").

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter:

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Re claim 2, Asakura et al. ("US 6,681,018 B1") and Yoshida ("US 5,321,671") as a whole disclose a channel down mixing apparatus for a car audio system, which has a channel down mixing function for down mixing a sub-woofer signal to an L (left) channel and an R (right) channel when a user does not select a sub-woofer speaker, the apparatus comprising: a pair of buffers that amplifies an L (left) channel input signal and an R (right) channel input signal to a designated gain; a pair of FETs that mixes the sub-woofer signal with the L channel input signal and the R channel input signal when the user does not select the sub-woofer speaker, and outputs a mixed signal to each of the buffers; a first transistor being turned on when the user turns on the sub-woofer speaker; and a second transistor and a third transistor, which are turned off when the first transistor is turned on and turned off when the first transistor is turned on.

However, the combined teaching of Asakura et al. and Yoshida fail to disclose of a resistor is serially inserted before the respective buffers; a pair of parallel resistors connected in parallel to the serial resistors that are inserted between an output end of each of the FET and an input end of the buffer; wherein the second and third transistors earth each of the parallel resistors when turned on, thereby reducing the level of the L channel input signal and the R channel input signal by a resistance ratio of the serial resistor to the parallel resistor.

Therefore, in view of the missing limitation above, the independent claim 2 is allowable.

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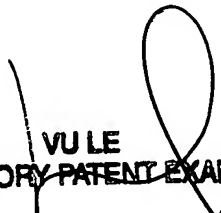
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-272-2222. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on 571-272-2000. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP


VU LE
SUPERVISORY PATENT EXAMINER